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ABSTRACT

Approaches that appear most effective for teaching beginning reading to children who are having difficulty learning to read are discussed in this paper. Research indicates that a code-emphasis method produces the best results. To determine which type of code instruction is most appropriate, reading programs were analyzed in terms of content, sequence, and pedagogy. Findings indicate little agreement about how many or which letter/sound correspondences should be taught. It is recommended that the earliest correspondences taught should be easy but functional, and presented in a noncompetitve manner. To analyze the pedagogical domain, the author evaluated lessons in code-emphasis programs and basal programs with phonic components and concluded that children without sophisticated auditory analysis skills learn to read best through a program that explicitly teaches correspondences and blending. Data cited suggest that skilled reading requires automaticity of word recognition. Previous encounters with a word increase processing of the word. It is recommended that steps be taken to enhance rapid word recognition. The author contends that reading comprehension is dependent upon the same linguistic, conceptual, cognitive, and general knowledge abilities as aural language comprehension, and that children should be given time to assimilate aural information before concepts are elaborated in print. It is concluded that for children having difficulty learning to read, structured, direct teaching affords greatest success. (MK)

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WHAT DO WE KNOW ABOUT TEACHING AND LEARNING IN URBAN SCHOOLS?

Volume 5

Instructional Ingredients for the Development Of Beginning Reading Competence

Isabel L. Beck
University of Pittsburgh

Paper prepared for the National Conference on Urban Education,
held in St. Louis, Missouri, July 10-14, 1978.
Conducted by the Urban Education Program, CEMREL, Inc.,
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CEMREL, Inc., St. Louis, Missouri

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Foreword

This monograph is one of a series of papers on the issues of instruction and learning in urban schools that were presented at a conference held July 10-14, 1978, in St. Louis, Missouri, sponsored by the Urban Education Program, CEMREL, Inc., and supported by the National Institute of Education. It is our hope that both the conference and the series of fourteen monographs that resulted from it will assist educational researchers and school practitioners in identifying and analyzing instructional and learning problems in urban school settings, and will contribute to the development of strategies for the improvement of schooling for students.

Titled "What Do We Know About Teaching and Learning in Urban Schools?", the 1978 conference focused on an examination of research findings on the teaching-learning process in areas most germaine to and under control of the schools. The key problems to which the papers are addressed are the assessment of learning outcomes and the analysis of the relationships between instructional and other inputs and learning outcomes. Important contextual issues not under the full control of schools, such as community and parental involvement and the impact of federal and state governments in improving educational opportunities, were addressed at the conference as well.

The conference was conceived, in part, as an initial step in the development of a state-of-the-art review of the most critical issues faced by educators in urban schools who struggle with the morass of general educational problems, exacerbated by decreasing public confidence in large city schools, declining student enrollment, and increasing numbers of poor and minority students. While the conference does not exhaust discussion of the problems

that are particularly significant in the urban school setting, it forms a convenient focus for viewing the larger issues affecting education in our cities.

The educational innovation and change growing out of more than ten years of effort since the passage of the Elementary and Secondary Education Act of 1965 -- the primary stimulus for federal support of research and development in education -- has had the least impact on the student populations typical of the urban school setting. With this concern as a primary consideration, ten months prior to convening the conference, CEMREL's Urban Education Program had begun work with a network of twenty big-city school districts and state departments of education in Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Ohio, Tennessee, and Wisconsin. Thus, the conference and the research findings of national authorities was undertaken to lay a foundation for future work in urban educational research and development and to undergird present efforts at improvement of schools in the region.

The Conference Design

To guide the development of the presenters' preparation of their papers, topical questions were prepared for them by Urban Education Program Staff and a paper format was recommended. Each presenter prepared a full paper based on the topical questions and results were summarized by the writers during general sessions of the conference. Because of a wide range of perspectives held on the conference issues, discussions precipitated by reactor panels composed of other prominent researchers, practitioners, and community leaders in education followed each general conference session. More than one hundred educational researchers and practitioners from across the country attended the conference. The invited participants came from school districts and state departments of education from nineteen states; thirteen institutions of higher education; four federal agencies; numerous educational laboratories and research and development centers; and seven social service agencies.

The conference was divided into two types of sessions: general sessions, wherein the nationally recognized speakers who wrote papers presented their summaries; and forum sessions, wherein reactors helped analyze the presentations and examine the concrete recommendations put forth by the general-session speakers. All participants were encouraged to present questions and reactions during these forum sessions.

Francis S. Chase, Director of Urban Education Studies, Dallas, Texas, gave the keynote address at the opening session of the conference, a banquet on Monday evening, July 10. His topic, "Promising Developments in Urban Education," summarized field studies that he was conducting under sponsorship of the Council of Great Cities Schools and the University Council for Educational Administration under a grant from the Spencer Foundation. Chase is Professor Emeritus of the University of Chicago, where he also served as Chairman and Dean of Education for ten years.

The Conference Topics

Each of the presenters had been asked to design a paper by responding to salient topical questions, drawn up by CEMREL's Urban Education Staff. The questions that were posed originally for each of the writers are presented below. Most of the resulting papers were developed into monographs for this series.

Compensatory Education: A Congressional Perspective Christopher T. Cross Minority Staff Director Committee on Education and Labor U.S. House of Representatives.	What is the current state of the evidence concerning projected changes in legislative mandates, and what may we expect related to changes in policy governing federally funded compensatory education programs?

Effective Teacher-Support Systems to Improve Instructional Conditions in Schools Joseph D. Liggins Assistant Superintendent for Staff Development Houston Independent School District	What teacher support systems are most effective in improving instructional conditions for students? What is the role of in-service training, and what types of in-service training can be recommended to urban educators? What other resources--such as additional curricular materials, support from teacher aides and volunteers, time re-allocations, team teaching arrangements, etc.--can be demonstrated to be effective in improving students' learning opportunities? What is the state of the evidence?
Assessment That Respects Complexity in Individuals and Programs Judah L. Schwartz Professor of Engineering, Science and Education Massachusetts Institute of Technology	How can we best measure and analyze the effects of instruction on students' learning in the major school subjects: What are the most appropriate times and strategies for measuring the effects of schooling on student learning? What do we learn from means of assessment other than standardized achievement testing? When and under what circumstances is it most appropriate to use alternative or complementary strategies for assessing program effectiveness?
Achievement Tests in Urban Schools: New Numbers Eva Baker Director Center for the Study of Evaluation University of California, Los Angeles	How can we best measure and analyze the effects of instruction on students' learning in the major school subjects? What are the most appropriate times to measure the effects of schooling on student learning? What are the cautions which should be taken into account before any attempt to evaluate the effectiveness of programs primarily on the basis on standardized achievement data, especially when the number of individual implementations is large and the actual conditions under which the implementations took place are not well documented?
Summer Drop-off and The Effectiveness of Compensatory Instruction Paul T. Hill The Rand Corporation	What has the era of compensatory education program development contributed to knowledge about achievement in the basic school subjects in urban schools? Where is the evidence? What, if anything, does the evidence indicate about methods for improving basic skills achievement? What, if any, recommendations can be made to school district planners on the basis of existing evidence?

Instructional Ingredients for the Development of Beginning Reading Competence Isabel Beck Co-Director Learning Research and Development Center University of Pittsburgh	Much research, program development, and implementation of efforts to improve achievement in basic school subjects has been concentrated in the area of reading. What approaches to instruction in reading have been successful in increasing achievement? Is there evidence that certain approaches are best suited to the needs of particular populations? Do these effects generalize to other areas of school learning, such as mathematics, social studies, and science?
A Discussion of The Literature and Issues Related to Effective Schooling Ronald Edmonds Director Center for Urban Studies Graduate School of Education Harvard University	Are there schools that have demonstrated a higher degree of effectiveness in the delivery of instruction in the basic school subjects than others serving similar student populations (in terms of socioeconomic backgrounds, family characteristics, minority populations, etc.)? What characteristics distinguish these schools from less successful schools in similar situations? What is the evidence that the explanatory characteristics have been correctly identified, and how strong is that evidence?
The Educational Promise of Cultural Pluralism Vera John-Steiner and Larry Smith Department of Educational Foundations College of Education The University of New Mexico	How can we approach problems of teaching and learning in urban schools so that the racial and cultural diversity of the school population is recognized, respected, and utilized constructively, to the extent possible? How do we differentiate between basic academic skills, which all students need to acquire for successful participation in our hetergeneous society, and curriculum decisions which can and should be tailored to the needs and interests of different sub-cultural groups? Do students benefit from participation in racially and culturally hetero-geneous classrooms, or perhaps from certain kinds of heterogeneous instructional settings but not others? What is known about these issues, and how much consensus is there about the cultural values on which schooling must be based?

New Perspectives on School District Research and Evaluation Catherine Lyon Center for the Study of Evaluation University of California, Los Angeles	What is the role of research and development processes in improvement of instruction and learning in basic school subjects in large urban systems? In what form are these processes being applied to the teaching and learning process in urban schools? What is the evidence and how solid are the indications that use of these proceses has resulted in improved student achievement?
Effective Teaching and Learning in Urban Schools Jane A. Stallings and Shirley W. Hentzell Stanford Research Institute	Looking specifically at the interaction of student, teacher, curricular and school organization characteristics, what instructional conditions encourage achievement in basic school subjects? What evidence is there, and how good is it? How are the effects of instructional conditions on student achievement measured? On the basis of existing evidence and trends, what recommendations can be made for improving students' instructional environments?
Mathematics and The Urban Child Marilynn Suydam Center for Science, Mathematics, and Environmental Education The Ohio State University	Mathematics is a school subject which is generally considered basic, insofar as mathematical skills are required for successful adult functioning in our complex society. What evidence is there to indicate which approaches to instruction in mathematics have been successful in increasing achievement? Is there evidence that certain approaches are best suited to the needs of particular populations? Do these effects generalize to other areas of school learning, such as reading, social studies, and science?
Basic Skills in Urban Schools: A View From The Bilingual Classroom Concepcion Valadez Graduate School of Education University of California, Los Angeles	Since the second largest minority population served by many urban school districts is a bilingual population, what is the current state of the evidence about the effects of programs developed especially for bilingual students? What, if anything, does the evidence indicate about the effects of such programs on basic skills achievement?

School-Community Relations and The Urban School
Dean Bowles
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What do we know or what can we learn about the influence of parental and community involvement in schooling on student achievement? How does parental and community involvement affect the teaching-learning process? If information is not available to answer these questions on even a tentative basis, what types of research are recommended to study this aspect of students' lives more effectively?

Frank Sobol
Basic Skills Group
National Institute of Education

Are there research and development products which have contributed to improved instruction and increased student achievement in basic school subjects in large urban school systems? What is the evident and how solid are the indications that use of these products has resulted in improved student achivement?

A Summary of The Conference Findings
Edmund W. Gordon
Director
Institute for Urban and Minority Education
Teachers College
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In light of the evidence produced by examination of these issues, what concrete recommendations can be made to school districts concerning the improvement of instruction and learning in basic school subjects? In light of the same evidence, what research and development agenda should be the focus of future study and program development?

Dr. Francis S. Chase,
Director of Urban Education
Dallas, Texas

Keynote Speaker for Conference Banquet:
"Promising Developments in Urban Education"

--Harriet Doss Willis
Director
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Instructional Ingredients for the Development Of Beginning Reading Competence

Isabel L. Beck
University of Pittsburgh

The preliminary materials I received from CEMREL, Inc., inviting me to write a paper stated, "The question to which this paper should be primarily addressed is: Are particular types of curriculum necessary or more helpful to urban school children than other types of curriculum in imparting the basic skills of reading?"

After years of helping students to "limit their topics," I took my own advice and notified the sponsors of the conference that I would be concerned only with beginning reading. While it is true that there is a much higher incidence of poor reading performance among urban school children, no single group of children has a monopoly on difficulty in learning to read since there are poor readers in every racial, ethnic, and socioeconomic group. Therefore, I prefer to think about those children (whatever their race, economic group, and geographical location) who will have difficulty in learning to read as the target population of my concern. Hence, the overall focus of this paper is, What approaches appear most effective for teaching beginning reading to children who may have difficulty in learning to read?

ISABEL L. BECK is Co-director of the Language and Communications Unit at the Learning Research and Development Center, University of Pittsburgh.

Reading is an area to which a huge amount of research effort has been devoted, for which mountains of instructional materials have been developed, and around which some of the strongest arguments in education have raged. Indeed, in the late 50s and early 60s, virtually every aspect of beginning reading--when to begin, where to begin, how to begin, with what to begin, should it ever begin at all--had been debated, at times polemically and with great passion. While it is my sense that the rancor sometimes evidenced in earlier arguments between proponents of one approach or the other is not so much in evidence in the discussions today, I believe that to a large extent the Great Debate continues--albeit with less overt intensity and sometimes under new labels. Instead of phonics versus whole-word approaches or code-emphasis versus meaning-emphasis approaches, today we are more likely to hear bottom-up versus top-down processing discussed. Hence, I think it is necessary to briefly review the Great Debate.

The Great Debate

The distinction between a meaning-emphasis and a code-emphasis in beginning reading approaches was proposed by Chall (1967) to describe differences in the extent to which existing curricula stressed one aspect or the other. Proponents of various meaning-emphasis approaches--whole word, basal reading, language experience--usually assume that good initial reading should emulate skilled reading performance as closely as possible. And, since skilled readers process units such as words and sentences, so should beginning readers, even if they can manage only a few words and sentences. By contrast, a code-emphasis in early reading--phonic, linguistic, ITA--assumes that the fundamental task of initial reading is learning the structural relationships between written and spoken language--that is, the grapheme-phoneme mapping that characterizes the language.

It is important to point out that, since the American Revolution, a succession of word methods, alphabet methods, sentence methods, experience

methods, and phonics methods have been practiced. But even though all these approaches to beginning-reading instruction were prevalent enough to have surfaced from time to time in the literature, phonics was the prevailing method until about the 1920s.

The kind of phonics practiced in the early part of this century was of a rigid and abstract vintage. Paul Diederich (1973b) described the period as a time when:

> Initial instruction in letter-sound relationships and pronunciation rules was done to death . . . . children had to learn so much abstract material by rote before doing any significant amount of reading. (p. 7)

The whole-word approach, more popularly known as the "look-say" method, came into vogue in the 1930s and, as I will argue, is still the prevailing method in the 1970s. The whole-word approach, although it has many internal variations, most frequently begins with the teaching of whole words as meaningful units. High-frequency words are introduced in controlled settings, repeated, associated, and reinforced until they are learned. Associating words with pictures and fostering the understanding of words from their uses in context stress the meaning aspects of the vocabulary from the beginning. A basic vocabulary of from 50 to 200 words (depending on the specific program), called a "sight vocabulary," is established through these procedures. These words are then used as the set from which phonetic principles are extracted.

Compared to the elongated, elaborated phonics practiced prior to the 1930s, the whole-word method was a relief. Diederich (1973b) reported his own response to the whole-word method when he first saw it as a graduate student in education at the University of Chicago:

> When [this] writer began his graduate study of education in 1928, he was told by no less an authority than Walter Dearborn that it was quite possible to learn to read

> without first learning the alphabet. This seemed preposterous, and Dearborn had to send his students to observe several classes that were learning to read by the new "look-say" method before they would believe that it was possible.
>
> When prospective teachers like the students of Walter Dearborn discovered what a relatively painless process the teaching of reading could be, using the . . . whole word approach, they were not disposed to demand evidence of superior results . . . It was enough to show that the new method worked about as well as the old and with far less agony. (p. 7)

The first modern challenge to the whole-word approach came from linguists who were concerned that the structural relationships between written and spoken language were not being maximized. Reviving a concept introduced by Bloomfield in the 1930s, linguists in the 1950s argued that the basal readers, whose vocabulary was not chosen to display the regularity of the written code, made the task of learning to read unnecessarily difficult. They urged that beginning reading maximize the regularities of print-to-sound mapping.

In 1955, Rudolph Flesch's book, Why Johnny Can't Read, became a best seller. In it, Flesch vehemently attacked the whole-word approach and demanded a return to a phonics approach. While reviewers in educational journals rejected Flesch's argument--because it was just that: a propagandistic argument rather than a careful study--it was given a favorable response by the general public and press.

Chall's Conclusions

It was in this context that Jeanne Chall in 1962 began her landmark study. In her study, Chall (1967) critically analyzed existing research that compared different approaches to beginning reading. She pulled together correlational studies of beginning-reading achievement. She investigated the relationships between the extent and kinds of reading failures children

experience and the methods used to instruct these children in the initial stages of reading. In addition, she interviewed the leading proponents of the various methods and observed these methods in use in schools. The result was a well organized and insightful interpretation of a massive amount of data.

In Chall's words, her conclusions were:

> My review of the research from the laboratory, the classroom, and the clinic points to the need for a correction in beginning reading instructional methods . . . . the research from 1912 to 1965 indicates that a code-emphasis method--i.e., one that views beginning reading as essentially different from mature reading and emphasizes learning of the printed code for the spoken language--produces better results, at least up to the point where sufficient evidence seems to be available, the end of the third grade. (p. 307)

In terms of advantages for particular populations Chall provides the following conclusions:

> There is some experimental evidence that children of below-average and average intelligence and children of lower socioeconomic background do better with an early code emphasis. Brighter children and those from middle and high socioeconomic backgrounds also gain from such an approach, but probably not as much. Intelligence, help at home, and greater facility with language probably allow these children to discover much of the code on their own, even if they follow a meaning program in school. (p. 84)

More Support for Code-Emphasis

Chall's conclusions have stood up well over the last decade. For instance, Paul Diederich (1973b), interpreting the findings of the 1971 Corder Report, stated that "one of the few conclusions of reading research in which we can have a high degree of confidence is that earlier and more systematic instruction in phonics is essential" (p. 7).

Recently, in an effort to identify the characteristics of successful programs, the National Institute of Education (NIE) funded a survey of the data from the following reports on successful programs: American Institute for Research (Bowers, Campeau, Roberts, & Oscar, 1974), Weber (1971), New York State Office of Education (1974), the CRAFT Project (Harris & Serwer, 1966), and the RMS Research Corporation (Tallmadge, 1974). The NIE report of the survey points out that among successful programs one finds "frequent inclusion of a 'phonics' component" (Guthrie, Samuels, Martuza, Seifert, Tyler, & Edwall, 1976, Section I, p. 32).

In addition to the above, recent evaluations of Follow Through students in a variety of programs indicate that the University of Oregon's program, which uses DISTAR, a strong code-emphasis approach, more regularly shows advantages over its control group than other models (Stebbins, St. Pierre, Proper, Anderson, & Cerva, 1977).

More support for a code-emphasis comes from my colleague, Lauren Resnick, who served as director of the Theory and Practice in Beginning Reading Instruction Project. In a series of three conferences during the spring of 1975, this project brought together over 50 professionals involved in reading research and teaching to hear formal papers and to discuss early reading instruction. The aim of the conference was to provide educators and the public with information about the approaches to reading instruction having the greatest chance of success with hard-to-teach children (see Resnick & Weaver, in press). From the empirical studies mentioned previously and the papers and discussions at the project conference, Resnick (Note 1) concluded that for low socioeconomic groups and for low achievers in general, "as a matter of routine practice, we need to include systematic code-oriented instruction in the primary grades, no matter what else is done. This is the only place where we have clear evidence for any particular practice" (p. 26).

Reading Programs and Trends in Phonics Instruction

But today virtually every reading program claims to include systematic decoding instruction. Indeed, the conclusions of some of the research efforts noted above were partially heeded by publishing houses, with the result that some houses that had traditionally published programs employing whole-word methods incorporated into their latest editions earlier and more substantial phonic components.

In 1975, Popp noted that phonics instruction appeared to be starting earlier in some of the latest series published by companies that had previously produced meaning-emphasis programs. Many other beginning-reading programs adhering to code-emphasis principles from their inception had been totally developed since the mid-1960s. While the developers of these programs and many professionals involved with reading agree that early and regular instruction in some type of systematic code instruction is needed, there is no consensus about what kind of code methods should be employed. Regarding this issue, Chall (1967) states very emphatically that "the evidence does not endorse any one code-emphasis method over another" (p. 307).

Types of Decoding Instruction--Analysis of Current Methods

It seems that a decade after Chall we should attempt to determine what kind of code instruction is most appropriate for our target population. Therefore, about a year ago my colleague, Ellen McCaslin, and I undertook an intensive analysis of eight beginning-reading programs that are extensively used with compensatory-education students and that are illustrative of two different approaches to beginning reading (basal programs with phonics components and code-emphasis programs) in order to study and assess how well instruction is arranged in each program for teaching beginning readers to

break the code, i.e., to understand that printed letters represent particular sounds and words produced in oral language (Beck & McCaslin, 1978)[1].

The eight programs selected for analysis were: 1) Distar Reading I and Distar Reading II, SRA, 1974; 2) Programmed Reading, (Sullivan Associates, McGraw-Hill 1973); 3) The Palo Alto Reading Program, (Harcourt Brace Jovanovich 1973); 4) The Merrill Linguistic Reading Program, (Charles E. Merrill 1975); 5) Reading 720, (Ginn 1976); 6) The Houghton Mifflin Reading Series, (Houghton Mifflin 1976); 7) The Bank Street Readers, (Macmillan 1973); and 8) The New Open Highways, (Scott, Foresman 1974).

By utilizing existing theory, research, logical analysis, and our own teaching experience, we determined which aspects of the programs and which programs in their entirety are most likely to be effective in teaching beginning reading skills to our target population.

Scope of the Analysis

The dimensions in the major part of the analysis fall into three general categories: what is taught in the first two grades of the eight programs (content); when it is taught (sequencing); and how it is taught (pedagogy). In order to discuss what is taught, it is necessary to point out that reading, unlike other school curricula, such as the natural and social sciences, is not a body of knowledge from which curriculum developers can extract various content to be presented to children. Reading is a skill--a process in which people engage--rather than a body of knowledge.

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[1]Beck and McCaslin was preceded by Beck and Block (in press) which was a paper delivered at the Conference on Theory and Practice in Beginning Reading Instruction (April, 1976). That work, which was limited to analyzing the Ginn and Palo Alto programs, was extended to include six other commercially published beginning-reading programs studied in my work with McCaslin.

Content of Reading

Hence, we first had to decide what we would consider the subject matter--the content--of the various beginning reading programs. Carroll (1964) has noted that, if there is a content to the subject matter of reading, then "that content is the relation between the structure of spoken messages and the system of marks or symbols used to represent these messages" (p. 339). We narrowed Carroll's definition further to specify the content of beginning-reading curricula as the letter/sound correspondences that are presented. This seemed to us the most sensible description of the content as it is a "generative" form of knowledge. The notion of "generative" forms of learning as proposed by Bruner (1966) focuses on knowledge and skills that learners can use to derive additional knowledge and skills for themselves. In the instance of reading, this would seem to imply helping the learner to understand the regularities of the coding system, so that he or she does not remain dependent upon an outside source to translate a printed word to its oral representation, but can "figure it out" independently. Hence, the content described and analyzed consists of the letter/sound correspondences taught by each program.

An Aspect of Sequencing

We conducted a number of analyses concerning the number and sequence of correspondences in each of the eight programs. To report on this endeavor, I will simply present the results of one of these analyses and then our general recommendations regarding the sequencing of correspondences.

The analysis here concerns an aspect of the sequencing of content in terms of the problem of what to do with letters that look alike. We selected two highly similar letters and plotted the intervals between the teaching of these letters, both in terms of intervening graphemes and in terms of elapsed time in the school year. Since the most difficult letter pair to discriminate is the b and d pair (Popp, 1964), we selected that pair as an indication of how the programs address this problem.

The results of this analysis show that, at one end of the spectrum, Distar introduces 27 graphemes and about a half year of instruction between b and d. Bank Street separates the letters by only five other graphemes; however, the time interval is almost a half year. In contrast, the remaining programs introduce the letters in close proximity, with few intervening graphemes and brief time intervals. In Merrill and Open Highways, only one grapheme is introduced between b and d. In Houghton Mifflin, the letters are separated by only two other new letters. The time lapse in all three cases is negligible. Sullivan and Palo Alto introduce four intervening correspondences, and Ginn, eight. It is rather startling how closely, both in the minimal time elapsed and in the small number of intervening correspondences introduced, six programs (all but Distar and Bank Steet) place this competitive letter pair.

The usefulness of separating letters that are easily confused was demonstrated in some previous work at the Learning Research and Development Center (LRDC). In the early 1970s, we closely observed the use of the Sullivan program (which has very close introduction of the b and d) in dozens of first-grade classrooms. We heard repeatedly from teachers that many children experienced confusion in distinguishing between the b and d--reading bad for dad, big for dig, did for bib, and so forth. When we later introduced into the same classrooms (identical in SES) the LRDC-developed beginning-reading program, a program which widely separates these two competitive letters, we never again heard of any b - d confusions. The solution to visually confusing letters seems simple: separate them. We compliment Distar and Bank Street for attending to this issue, and we fault the other programs for allowing a possible area of confusion to exist.

Conclusions on Content and Sequencing

The general conclusions from the results of our analyses of the content and sequencing of the eight programs in our study are as follows. First, we

found that there is little agreement among the programs concerning how many correspondences to each or which correspondences should be taught. Along the sequencing dimension, we believe that the earliest correspondences taught should be easy to learn but functional for generating words that are meaningful to children. The correspondences should be presented in as noncompetitive a manner as possible. For example, visually similar letters should be presented at wide intervals; the learning of multi-phonemed graphemes is probably facilitated via a special orthography that differentiates among the phonemes or through a sequence that permits a reasonable, though not excessive, interim between the introductions of the phonemes. Concerning the introduction of digraphs, we believe that they should be introduced early in the instructional sequence to help beginning readers realize that a target letter must be considered in its environment with other letters before its sound can be determined.

Our content and sequencing analyses were undertaken to determine how the eight programs agree with and differ from each other. We make no claim, however, that these analyses have been exhaustive in the sense of describing all the program variables involved. For the most part, our conclusions are based more on logical analysis and our own practical experiences in correspondence sequencing than on research findings--as there is little research that is directly helpful in this regard.

The considerations involved in sequencing the letter/sound correspondences that are to be taught are both linguistic and pedagogical in nature. They are linguistic because of the alphabetic nature of the English writing system. They are pedagogical because correspondences differ in terms of their ease of learning, and their productivity and utility (when joined with others) for generating words that are both meaningful and vivid to children. And, depending upon rates of introduction and relative placements, they quite likely make a difference in the developing child's concept of how the writing system works. As for the delicate balancing

involved in sequencing letter/sound correspondences, we would like to see correspondences thoughtfully arranged in as nonconfusing, noncompetitive a sequence as possible, given the difficulty and interrelationships of the task.

Pedagogy of Correspondence Lessons: How the Content Matter of Beginning Reading is Presented

We turn now to a discussion of what may be the most important variable in the instructional design of initial reading: How the content matter of beginning reading is presented to the students--that is, the pedagogy of the correspondence lessons.

One of the important differences between the basal programs with phonic components (i.e., Ginn, Houghton Mifflin, Bank Street, and Open Highways) and the code-emphasis programs (Distar, Sullivan, Palo Alto, and Merrill) that needs to be noted at the outset concerns the basic unit of lesson content. In the basal programs, the initial content of a lesson is a set of words; in the code-emphasis programs, the lesson is organized around letter/sound relationships. However, the basal programs also provide instruction in letter/sound relationships as part of their skills development components. The programs therefore may be compared in terms of their handling of correspondence instruction. The teacher introduces this content to the children. Teacher's manuals of each of our programs contain very definite suggestions to the teacher regarding strategies for presenting content. While some teachers may not follow these suggestions exactly, there is evidence that many teachers do consider the teacher's manual highly influential on their classroom performance (Diederich, 1973a).

To compare the instructional-strategy suggestions contained in all the programs, we searched for similar content that would be taught at approximately the same time in the school year. We focused on instruction for short vowels because vowels are taught in greater detail than consonant

correspondences, and also because all eight programs teach at least several short vowels in the first grade.

Among the eight programs, there was no one point in the school year where they would all be teaching the same short vowel. We found, however, that the time of introduction of the short e in some programs was close to the time of introduction of the short i in the remaining programs. Our analysis, therefore, involved the teaching directions for either short i or short e lessons. Given that all the programs have provided detailed specific instruction for the particular short vowel considered, it is fair to say that each of the eight instructional sequences has as its objectives the child's acquisition of that correspondence. Thus, our first criterion for evaluating the lessons was their potential effectiveness in fulfilling the objective of teaching the symbol/sound correspondence.

As already indicated, letter/sound knowledge is critical for unlocking the pronunciation of an unfamiliar printed word. Indeed, Carroll (1964) suggests that "when the learner has mastered the important grapheme/phoneme correspondences . . . the learner may be said to have 'broken the code' of English orthography" (p. 340).

In addition to the acquisition of correspondence knowledge, however, there is a second element that is also essential to word attack. This is the ability to synthesize sounds into a word. This skill has variously been termed blending, sounding out, synthesizing, and sequential decoding; it appears in every task analysis of decoding of which we are aware (Bateman, in press; Sticht, Beck, Hauke, Kleiman, & James (1974); Resnick & Beck, 1976; Venezky, 1975a). Thus, our second criterion for the evaluation of the lessons was their likely effectiveness in teaching the ability to blend.

The principal materials for our pedagogy analysis were the teacher's manuals from which we abstracted instructional strategy descriptions for either all

of the short i or all of the short e lessons. The method for abstracting descriptions involved close reading of each description, the identification of important instructional elements to be retained for the shortened descriptions and the elimination of other less important discursive content. The instructional elements retained for these abstracted versions of the strategy descriptions were: descriptions relating to the task directions, descriptions relating to the stimulus, descriptions relating to the student's response, descriptions relating to prompts, and descriptions relating to consequences and corrections. Also included were notations regarding the number and type of repetitions of a lesson event. In addition, we tried to include the "flavor" of the lessons by quoting directions from the manuals from time to time.

These abstracted lessons take up some 30 pages of appendices in our original monograph, with the body of the monograph containing almost a 30-page discussion of the data contained in the abstracted lessons. I mention all of this because the scope of the present paper is much broader than our original analysis work, making it inappropriate for me to present our pedagogy analysis data in any detail. I will, however, present our conclusions, but I want to alert the reader that because our conclusions are quite dependent upon our discussion of the data in the abstracted lessons and, because a great deal of theory, research evidence, and observations from my own field experience is entwined in our discussion, the development of some of the arguments leading to some conclusions presented here will be missing (the reader is referred to Beck and McCaslin, 1978, for the full study).

First, I will present our assessment of each of the four code-emphasis programs in terms of the two aspects previously mentioned: 1) whether we believe that most of the children in our target population will be able to learn the new correspondence being presented; and 2) whether they will be able to use the new correspondence knowledge with other known correspondences to synthesize sounds into words.

Distar. It is our strong opinion that children using Distar will learn the new correspondence since the instruction is to the point; the grapheme/phoneme correspondence is presented directly with no words used to "mediate" the new phoneme, and no letter names used during the lesson. The teacher presents the i grapheme and models the response to be established by pointing to the letter i and saying the /i/ sound. There are many occasions when the children are asked to do the same. In addition, they are often required to demonstrate that they can produce the correct phoneme when it is contained in a set of previously learned graphemes. We also believe that the children in our target population will develop synthesizing ability, since Distar has a specific training strategy for blending and children engage in that strategy frequently.

Sullivan. We believe that children will acquire the new correspondence from the instruction provided by Sullivan. Although the correspondence presentation is mediated by words, the teacher does explicitly make the e to /e/ association, and there are many instances when the students are required to produce /e/ when they see e. However, we do have certain reservations about the way in which Sullivan presents the correspondence. It seems to us that instructional time is spent on activities that are not directly related to learning the e to /e/ relationship; e.g., in the absence of the printed stimulus, children are required to say a phoneme after its letter name is presented orally. This is a difficult task, and developing the desired response for it requires time. We are also concerned that there are many instances in which the response elicited from the stimulus (the printed e) is variable. Given the printed e, the children are sometimes to respond with the phoneme only, sometimes with the letter name only, and sometimes with both. In these activities, in which the stimulus is constant and the required response is being changed arbitrarily, we believe that the letter/sound association is made unnecessarily elusive.

In respect to whether children will learn to synthesize sounds into words, however, we must conclude that the answer is no. The teacher's manual

direction for the teacher to "help students sound out words" is not adequate since we have seen too many teachers operationalize this advice inappropriately and ineffectively. Likewise, the one-time instruction to the teacher to say a word "fast" (as a prompt for how to put sounds together) is inadequate for developing synthesizing abilities in children. The teacher needs a strategy, not just a hint. There is a missing link in the Sullivan sequence. The students will learn the correspondences but are not likely to develop the ability to synthesize sounds into words.

Palo Alto. We do think that most children in our target population will learn the i to /i/ correspondence from the instructional experience presented in Palo Alto; despite word mediation and letter naming, there are many activities in which the phoneme/grapheme relationship is made explicit in the instruction. The major comment we have concerning Palo Alto's correspondence instruction is that the initial presentation and practice presents the correspondence as going from phoneme to grapheme; that is, the children hear /i/ and the identify an i letter. In actuality, when children are faced with an unfamiliar word in a word attack situation, the sequence goes the other way, from grapheme to phoneme. We would like to have seen more practice in the direction in which the grapheme is the stimulus and the phoneme the response.

Although blending is not taught through a systematic procedure in Palo Alto, we do believe that children will probably develop synthesizing ability. The program materials include a device called a Spelling Pocket, a cardboard card holder into which letter cards are inserted and horizontally manipulated. We see this as a powerful tool, enabling children through manual manipulation to externalize the sequential ordering of graphemes in words, a subskill that is important for blending. We think that the many opportunities that each child has to manipulate letter cards by changing letters and letter positions to read different words does facilitate the development of synthesizing abilities.

Merrill. The Merrill lesson is a strict adherent to the linguistic approach proposed by Bloomfield and Barnhardt (1961) in which children must induce letter/sound correspondences upon the basis of groupings of words containing similarities and contrasts in major spelling patterns. The phoneme is never isolated, and the smallest unit for pronunciation is always a word.

The sequence for teaching the short i correspondence begins with the new word bit placed beside the known word bat. The children read the known word, and the teacher pronounces and spells the new word, eliciting the difference between them. In the final event, the children pronounce and spell the new word. Many instances of short i words are presented in this way.

Although the correspondence is not explicitly taught, we believe that most students in our target population will acquire the i to /i/ correspondence. In Merrill, each lesson is structured so that words are displayed to maximize the chances of induction. There is also considerable repetition; the same sequence of lesson events is used for many words to provide the extended practice we believe is vital in this type of presentation.

We do not think, however, that children will be able to synthesize sounds into words from this lesson sequence.

A comparison of instructional strategies among the code-emphasis programs. From the preceding individual lesson evaluations, the reader knows we believe that children receiving instruction from any of the four code-emphasis programs are likely to acquire the correspondences being taught. However, in compiling a preferential listing of programs for our target population, we would have to rank programs according to the directness of the correspondence instruction, the most direct instruction receiving the highest ranking. Activities which we found in some of the sequences that could detract from the directness of the instruction include: word mediation in presenting the correspondence; letternaming as

a response to either the grapheme or phoneme as a stimulus; and the task of identifying pictures whose names contain the target phoneme.

Word mediation is included in Sullivan, Palo Alto, and Merrill. Distar is the only program that presents the letter/sound association directly, with no other concepts surrounding the correspondence. This kind of directness can be contrasted with the indirectness and miscuing of the following procedure observed in a traditional classroom of an experienced teacher. The teacher held up a card with m printed on it and said, "This is an m. The name of the letter is m but the sound is /m/, as in 'mmmmountain.' I want to hear everyone say it." One child said m, two said /m/, another said "mmmmountain." The teacher said, "No, I want you to say the sound. Listen: /m/ as in 'mmmmountain,' 'mmmmother,' 'mmmmonkey.' Who can think of another /m/ word?" Hands went up. One child said, "'Mmary' like my name." Teacher: "Good, Mmary. Any others?" A second child said, "We went to the mountains once. It was our vacation and we slept in a tent." With so many concepts floating about, only the more sophisticated child could extract the relevant information from the lesson. The use of words to mediate the correspondence may be more detrimental than beneficial.

Letter-naming occurs in Sullivan, Palo Alto, and Merrill; it is not included in Distar until second grade. In a 1975 article Venezky evaluates evidence which claims that letter-name learning is beneficial for word attack and word-recognition development. He concludes that, while letter-naming is not harmful, "a heavy emphasis on letter-name learning in either pre-reading or initial reading programs has neither logical nor experimental support" (1975b, p. 19). He continues with a statement with which we strongly concur: "What needs to be discouraged is an overemphasis of letter-name learning, especially at the expense of other essential learning experiences" (p. 20). We agree that instructional time spent in letter-naming is instructional time not spent making the correspondence explicit. However, we do not

believe that any of our code-emphasis programs goes overboard in letter-name learning. In Palo Alto, using letter-names is a convenient technique for the teacher who is directing the students to get certain letter cards for their Spelling Pocket Activities. Merrill's requirement to use letter-names to spell new words seems to be an attempt to call attention to the new correspondence (it is unfortunate that this is the only way they have to to this, given the dictum against isolating parts of a word). With Sullivan, we noted earlier our concern that the letter-name response is too frequently requested during the teaching of the new correspondence; this may confuse the letter-sound association for students in our target population.

However, letters can be used in a way that reinforces correspondence learning. Distar, Palo Alto, and Sullivan have their students write the new letter. Several investigators have suggested that a sensory-motor task such as writing may serve to focus attention on the shape of the letter being taught (Fernald, 1943; Gillingham & Stillman, 1966; Ross, 1976). Tasks that help a child to focus attention selectively on relevant stimuli are positive, and the writing of the letter may indeed help to focus such attention.

Palo Alto is the single code-emphasis program that uses the traditional task of children identifying pictures whose names contain the target phoneme of the lesson. This task will also appear later in our evaluations of the basal programs' lessons. While the purpose of the task is auditory-analysis practice, in terms of decoding, we believe that Bateman (in press) evaluated the task perfectly when she noted that "circling a thousand worksheet pictures of things that start with [/i/] provides exactly zero practice in looking at [i] and responding with [/i/]" (p. 39). And the ability to focus on the grapheme and produce its phoneme is precisely what we consider the objective of the lesson. The point should not be belabored, however, since we have already stated that we believe students will learn the correspondence from the instruction provided in all four programs.

However, as we have also stated earlier, letter/sound knowlede is not enough; without the ability to synthesize sounds into words, the learner is still unable to attack words successfully. Clearly, many children develop this capability spontaneously. But several studies have indicated that some beginning readers must be taught explicitly to blend (Haddock, 1976; Marsh & Sherman, 1970; Muller, 1973; Silberman, 1964). These children are in trouble unless they happen to be using a reading program that facilitates development of this capability. Palo Alto, which provides a situation to externalize the process, does facilitate development of blending ability. But it is Distar that best provides the missing link that will enable the learners in our target population to go from knowledge of correspondences to reading words. Distar provides a definite instructional strategy for teaching blending (see Resnick & Beck, 1976, for an alternative blending strategy). Unfortunately, a statement I made in 1972 still holds true for Sullivan and Merrill: "The problem is not that the instructional strategies used to teach children to put sounds together are not working. The problem is that there is a virtual absence of <u>any</u> instructional strategy" (Beck & Mitroff, 1972, p. 26).

From this discussion, the reader has no doubt inferred our preferential listing of the programs on the dimensions of likelihood of letter/sound acquisition and synthesizing ability. For those who want confirmation, our ranking is: 1) Distar, 2) Palo Alto, 3) Sullivan, and 4) Merrill.

Before we turn to our lesson evaluation for each basal program, we need to remind the reader that in the code-emphasis programs, for the most part, the vocabulary that children see in their readers at any given point has been generated from the correspondences taught to that point. Basal programs, on the other hand, introduce vocabulary first as sight words and then use those words as stimuli for focusing attention on a particular correspondence.

From the previous discussion, it should be quite evident that we have a strong preference for letter/sound instruction first, as opposed to sight word instruction followed by correspondence instruction using the same words. But we did not look at that dimension as we viewed our basal programs. Rather, we assessed whether children (who have not induced a particular correspondence from their sight-word knowledge) will gain knowledge of the correspondence from the instructional events and will therefore be able to use it to attack an unfamiliar word.

Now to our assessment of correspondence instruction in the basal programs:

Ginn. We do not think that most children in our target population will have learned the i to /i/ association after experiencing the Ginn short i sequences. The major problem is that the target phoneme is never made explicit; rather the child must extract it from a spoken word. In addition, the target phoneme is referred to in abstract and varied ways. it is alternately called "the vowel sound in the middle of fish," or "the unglided vowel sound in hill," or described in other similar ways. When attempting to establish the grapheme/phoneme relationship, the teacher is directed to "help children understand that the [letter i] in the word fish is a symbol for the vowel sound heard in the word fish." We wonder what a teacher says and does to accomplish this. Since isolating the phoneme is prohibited, the teacher cannot point to the i in fish and say that it names the sound /i/.

We thought about strategies that might be used, given the above constraint, and could think only of the following: The teacher might extend the i phoneme in his or her pronunciation of fish (i.e., say fiiish) and point to the i while saying the extended /iii/ in fiiish. He or she might then tell the children that the sound said slowly is the sound that represents the letter. We think this would help, as there is much evidence that the extraction of a phoneme from spoken words is a difficult task for young children (Bruce, 1964; Calfee, Chapman, & Venezky, 1972; Rosner, 1973). But

it is not at all evident to us that teachers are aware of the difficulty of the task; hence, we are not convinced that they would intuitively provide effective strategies for helping children to focus on the target correspondence.

There is one word-building exercise that touches on synthesis, but in itself it is insufficient for developing this ability in our target population. Actually, the particular exercise is not even a good task for discriminating the new i correspondence, since the graphemic base (im) remains constant while the initial consonant varies. It is really an exercise in consonant discrimination. Hence, Ginn fares no better in our judgment of its capacity for developing synthesizing ability than it did for teaching the correspondence.

Houghton Mifflin. In our evaluation, the instructional experiences in the Houghton Mifflin lessons will not enable most children in our target population to acquire the e to /e/ association. While the target phoneme is actually made explicit--that is, the teacher says /e/ and the children repeat /e/--it is only done once in the whole lesson. Through the rest of the sequence, the teacher refers to the target grapheme as "the short sound of e." Prior to this lesson the children have already dealt with the "long e," so words that have long e appear in this lesson. Most of the events in the sequence require the students to determine which words in various sets of printed words contain short e, and whether the names of certain pictures contain short e.

Our negative evaluation of the e sequence arises in part because there is no logical or empirical evidence to show that knowing the label "short" or "long" facilitates learning a correspondence. Having broken the dictum against isolated phoneme production for vowels and even having permitted the children to produce /e/, we wonder why the developers didn't go a little further and simply refer to the sound the e grapheme makes in this lesson as /e/ rather than "short e."

The instructional event that follows the short e lesson is quite unusual. The children turn to their readers and read a two page "article" about the long and short e. The teacher uses the same procedures he or she would use for guiding children through a story (i.e., assigns a section to be read silently, asks questions about the silent reading, and selects students to read the selection aloud).

The first few sentences in the article are as follows:

> Two Sounds e Can Stand For
>
> Listen for the vowel sound in each of these words as you say it to yourself: bed be her bear
> Each of those words has the vowel e in it.
> But no two of those words have the same vowel sound, do they?
> The vowel e doesn't stand for just one sound. By itself or with another vowel, it can stand for any one of many sounds.
> Listen for the vowel sound in each of these words as you say it to yourself: he tree reach
> The vowel sound you hear in each of those words is the same as the name of the letter e, isn't it?
>
> (Level F, p. 72)

This article does little to supplement instruction for children who need help. First-grade children who can read and follow its complex directions (e.g., "Listen for the vowel sound as you say the word to yourself") have already learned the information and don't need the article. And, we do not believe that a printed recapitulation of the sounds e makes will teach these sounds to halting readers.

In addition to asserting that the sequence is likely to be ineffective for teaching the correspondence presented in this lesson, we must conclude that--since there are no activities that can even vaguely be interpreted as word building--students will not develop the ability to synthesize sounds into words.

Bank Street. We are doubtful that most children in our target population will acquire the e to /e/ correspondence from the Bank Street sequence. Our conclusion for Bank Street is based upon the same reasoning used in the negative judgments about Ginn and Houghton Mifflin since the three sequences have many similar features. However, our judgment about Bank Street is not quite as severe as it is with the other two basal programs, since Bank Street's sequence doesn't seem quite as distracting as Ginn's, and it provides for far more repetition than is provided for in Houghton Mifflin. In addition, there are many activities in which short e words are contrasted with previously taught short a and i words, thus providing considerably more discrimination practice than was evident in the other two basals.

In terms of synthesis, Bank Street, like Ginn, has one word-building exercise--a step in the right direction but far from sufficient to develop synthesizing ability in students in our target population.

Open Highways. In the Open Highways instructional sequence, the short e and the long e of the vowel digraphs ee and ea are introduced simultaneously. Following several activities in which those two correspondences are compared and contrasted, the "r-controlled e" (e.g., her) is also introduced. We do not believe that children will learn the target correspondences from the sequence in Open Highways, which is a classic example of programs that teach rules of pronunciation. The teacher specifically tells the children to apply the following rules when they get to e words: 1) "If you see the vowel letter e in a word followed by one or more consonant letters, you will first try the vowel sound that you hear in red, the short sound of e"; 2) "If you see the vowel letters ee or ea in a word, you will try the vowel sound that you hear in keep, the long vowel sound of e"; and 3) directing the children's attention to a word such as her, the teacher notes that even though r is a consonant letter, the e before it does not have the same sound as in bed. Rather, "the vowel sound you hear in these words is the r-controlled sound of e."

Toward the end of the sequence the children read words and are required to say why they used a particular sound of e. For example, after a child has read sled, the teacher asks how the child knew which sound to use for the e in sled. The child is expected to state the rule (i.e., the short sound of e because the e is followed by a consonant other than r).

We have personally seen a number of children in remedial reading clinics who could recite numerous rules, but who never spontaneously applied the rules to help unlock the pronunciation of a new word. To be forced to concentrate on: 1) the number of vowels in a word; 2) what kind of letter the vowel is followed by; 3) whether an r occurs after the vowel; and so forth, is far afield from seeing an e and thinking /e/, seeing an ee and thinking /ē/, or seeing an er and thinking /ur/. We agree with Venezky(1975a) who has negated the notion that children apply such rules. He says, "the . . . hypothesis that the child generalizes from a verbalization of a rule is inconsistent with experimental data reported by Venezky and Johnson (1973) for English letter-sound patterns" (pp. 7-8). In addition to believing strongly that children will not learn the target correspondences from this type of instruction, we believe that they will not have acquired the synthesizing skill necessary for word attack.

A comparison of instructional strategies among the basal programs phonic lessons. From the individual lesson evaluations of each of our basal programs, the reader can easily conclude that we do not think it probable that children in these programs will even acquire the correspondences being taught, let alone learn to synthesize sounds. Our primary criticism of the sequences is that the correspondence between letter and sound is not made explicit. In three of the programs (Ginn, Bank Street, and Open Highways), the target phoneme is never made directly available (i.e., isolated, rather than embedded in a word). When the teacher identifies the i in a word such as fish and tells the students that it stands for the "vowel sound" heard in /fish/, we have no assurance that the children are able to extract the /i/

sound and relate it to the i. When told to listen for the vowel sound in fish, some children may be focusing on the /f/ or /fi/ or /ish/ or /sh/ rather than the true target. Some children may not even be listening. If the child cannot relate the vowel sound to /i/, extract /i/ from fish, and hold /i/ in memory, the rest of the activities of the lessons serves little purpose.

Indeed, there is much evidence that many 5- and 6-year old children have difficulty analyzing spoken words for phonemes and other speech segments (Bruce, 1964; Calfee, Chapman, & Venezky, 1972; Rosner, 1973), even when the phoneme is made explicit. Wallach and Wallach (in press) have shown that even when the phoneme is very explicitly isolated, most "poor" children (poor in the sense of low SES), have great difficulty with phoneme recognition tasks, such as determining which words start with a target phoneme (e.g., whether house or man starts with /m/). The Wallachs concluded that "some children simply couldn't do this kind of task and that extended practice didn't result in their learning how to do it either, despite the best indications regarding the child's motivation" (p. 10).

The task described by the Wallachs is far simpler than the phonemic analysis tasks required in our basal programs. The auditory activities specified in the basals are not adequate for developing those phonemic analysis abilities either. Hence, we have a vicious circle. In order to profit from the phonics instruction in the four basal programs, a prerequisite of sophisticated phonemic analysis abilities is needed. And the children in our target population are precisely those children who do not already have these sophisticated abilities. If those phonemic analysis abilities are not there (and the Wallachs argue that they are not in many cases), then the phonics instruction in the basal programs is to little avail.

There is little to say about the development of synthesizing abilities here since we see such low odds for learning correspondences. However, we noted

earlier that the few word-building exercises offered in Ginn and Bank Street are in the right direction. Unfortunately, neither program uses them frequently enough to guarantee much effect on the children with whom we are most concerned.

Summary and Conclusions Regarding the Pedagogy of Correspondence Instruction

At the start of this paper it was noted that a phonics element is commonly included in beginning-reading programs that are considered successful. In these days, however, almost all beginning-reading programs claim to teach more phonics and earlier phonics (and implicitly, better phonics). Our attempt to study how instruction is arranged for teaching beginning readers to break the code led us to conclude that the pedagogy for teaching correspondence is the most important variable to be considered. If the pedagogy is convoluted, it matters little if the program begins such instruction early. Thus, a decade after Chall (1967), along the dimensions considered so far, we do not see the basal programs as being essentially different from the way she described them. It is certainly true that they start phonics earlier, but since we have concluded that their brands of phonics are useless for children in our target population, these children are still receiving reading instruction from a whole-word approach. If the phonics components do not help these children, they are left to induce the letter/sound generalizations from their sight-word repertoires. This is far from easy, given that the basals select their words on the basis of frequency rather than to maximize the regularities in the coding system. In addition, it is important to point out that there is experimental evidence that there is greater positive transfer (i.e., ability to read new words) from direct letter/sound training as compared with whole-word training (Bishop, 1964; Carnine, 1977; Jeffrey & Samuels, 1967). We ourselves favor the direct teaching of letter/sound associations, not only for the increased transfer abilities, but also for the ease of acquisition. We believe that children without sophisticated auditory-analysis skills can learn to "read" (i.e., to break the code of English orthography) through a program that explicitly teaches letter/sound correspondences and blending.

Word Recognition

The previous discussions have been concerned with only the decoding element of reading and, indeed, with only a portion of decoding. Decoding is a word used in many contexts and sometimes implies different meanings. I view decoding as the translation of print into meaningful speech (either covert or overt). Hence, a child who laboriously sounds out a word and produces the correct oral representation (and knows the meaning) of that word is decoding; so, too, is the child who instantly recognizes the word. Both sounding out and instantaneous apprehension of words are aspects of decoding. The former will be referred to as word attack; the latter as word recognition. Bearing this distinction in mind, the reader will note that I have up to this point dealt only with the word-attack aspects of decoding, which is comprised of letter/sound knowledge and blending ability. Word-attack ability is necessary, but far from sufficient for effective reading. There are few who would argue that the reader who must stop to "figure out" (i.e., initiate word attack procedures) the pronunciation of too many words in a text will gain little of the meaning of the material.

Putting word attack aside and moving to word recognition, we find evidence that very fast (automatic) word recognition is correlated with reading comprehension (Perfetti & Hogaboam, 1975) and that slow word recognition appears to be related to poor sentence processing (LaBerge & Samuels, 1974; Perfetti, 1977). These data make contact with a very viable theoretical position that the brain is a limited-capacity processor (Kiss & Savage, 1977) and that there will be interference with the higher level components of the reading process if too much processing capacity is used during reading for "getting through the words" (Lesgold & Perfetti, in press). The theory and data match my own field observations of poor readers--that is, that poor readers are slow readers. Here I am not referring to children whose oral reading was slowed down due to their frequent initiation of overt word-attack procedures. Rather, I have in mind children who, for instance, were able to read the Dolch Words correctly and who did not appear to be

figuring them out (i.e., initiating word attack) but who did not read them with what in my earlier days I had perceived to be the ease and confidence exhibited by good readers. The good readers' "ease and confidence" of word recognition that the teacher senses has now been more concretely described by the experimenter in terms of faster word-recognition response times for good readers than for poor readers.

Data, theory, and practical experience clearly suggest that skilled reading requires that the reader have a large reservoir of words that he or she recognizes automatically. The important question, then, is how this automaticity of word recognition can be developed. More than half a century ago, Huey (1908, 1968) suggested the importance of repetition and practice for its development. In a recent little article, Samuels (1976) discussed automaticity and pointed out that there is not much more that can be said about its development today than was said by Huey. Samuels concluded that "students will learn to read fluently only by reading" (p. 325). Few would dispute that good readers who are automatic word recognizers are likely to be those children who read a lot. The problem, however, is that the poor reader probably does not read a lot. It has been my observation that motivational schemes developed by practitioners to encourage wide reading generally tend to make the rich richer; that is, the children who already read, read more. While I strongly believe that it is important to provide lively material that matches the reluctant reader's interest, I do not believe this is enough, and I worry that it is highly dependent upon an individual teacher's perseverance and patience--ingredients that are not universal.

Without dismisssing the importance of continually attempting to motivate reluctant readers to read more, I will shortly suggest some notions that are more direct. Before doing so, I need to describe some work currently underway at LRDC that is relevant to this topic. If we accept that automatic word recognition is important, then it becomes important to learn as much as we can about how word-recognintion expertise develops in the

course of learning to read. Most existing research on word processing in elementary-school children has looked at achievement of word recognition (i.e., accuracy or recognition) but not at recognition facility. Therefore, in September of 1976, my colleagues at LRDC, Alan Lesgold and Lauren Resninck, along with a little help from me, began a three-year longitudinal study of the acquisition of word processing skills. In the study, we are following a group of children through an entire primary grades reading program, the New Primary Grades Reading System (NRS), developed at LRDC under my direction. NRS is an individualized program in which children move through 14 levels of instructional material at their own rates. In the longitudinal study, as a child completes an even-numbered level, he or she receives a battery of tests, including tests of reading and tests of speed or word processing and recognition.

In a word-processing task known as Category Matching, the child is told the name of a category (e.g., animal) and decides if the word that is flashed on a screen is an instance of that category (e.g., rabbit). The child's speed in making a yes or no response is measured. All the words that the child sees are drawn from words used in the instructional materials completed by the point of testing.

During the development of NRS we kept track of the number of occurrences of each word from its introduction through Level 6 (material typically completed early in second grade). Hence, at present we have frequency counts of each word used in the Category Matching tasks administered after Levels 2 and 4. In preparation for this paper we correlated frequency of occurrence and speed of recognition for each word in the experimental task, controlling for the number of letters in the words. The results show $r = -.62$ ($df = 11$, $p < .05$) after Level 4. These are healthy correlations and hint at the importance of frequent encounters toward the development of rapid word processing in beginning readers.

These data only suggest that a number of previous encounters with a word increases the young reader's speed of processing that word. The important

question, however, is whether a first grader's faster word-processing speed is related to general reading facility. In a paper very recently, Lesgold (Note 2) reported data on 5 measures gathered in the first year of the longitudinal study. His conclusions in terms of the relationship between word-processing speed and reading facility are:

> We have not completely solved the problems of which comes first, word processing speed or reading facility. We have, however, shown even in this preliminary set of data that the two are closely tied together and are not, for example, jointly the result of some general intelligence or other entering characteristic of the children. Further, the lack of any delay between changes in word-processing RT and improvements in reading efficiency is consistent with the notion that adequate processing speed means a decrease in the cognitive load on a limited capacity system, allowing the appearance of performance levels of higher-level processing for which competence may have existed all along. (p. 11)

Those of us who agree that reading facility is closely tied to word-processing speed and that repeated encounters are an important ingredient for developing fast processing do not, however, have much of a notion about the optimum number of encounters useful for an average child (if there is one), let alone the optimum number of repetitions if individual differences are taken into account.

From our own data we can perhaps glean a faint glimmer of the number of repetitions that may be useful for enchancing rapid recognition. At the end of the Level 2 testing point, all except one of the words that showed mean response times (RT) of less than 4 seconds (the range here was 2.63 to 3.82 seconds) occurred in the instructional materials more than 25 times. The only exception was the word cape which occurred 8 times. In contrast, all except one of the words that showed mean response times of more than 5 seconds (range of 5.01 to 5.79 seconds) occurred in the instructional materials less than 10 times. The one exception here is the word peas which occurred 11 times.

Moving to Level 4, we see a generalized effect of reading practice and/or experience with the experimental task in that the mean RT's summed across all of the words are reduced almost 1 second, from 4.31 seconds at the end of Level 2 to 3.37 seconds at the end of Level 4. But once again we see repetitions affecting recognition speed. For instance at this testing point all the words that showed mean RT's of less than 3.4 seconds (here the lower end of the range is 2.5) occurred in the instructional materials more than 15 times. In contrast, the word with the longest mean RT (4.39 seconds) occurred in the instructional materials only 3 times.

As it turns out, the older basals seem to have repeated their words more than some of the contemporary versions do. Rodenborn and Washburn (1974) noted that "in most of the older programs a word was repeated from six to ten times on the pages immediately following introduction" (p. 886). It appears that this amount of repetition is not so evident in some of the newer basals. For instance, Rodenborn and Washburn tracked the frequency of repetitions in one unspecified 1970 basal and found that of 240 different words used in the program's first book: 37 were repeated more than 11 times; 29 were repeated between 6 and 10 times; 174 were repeated less than 6 times; and 85 words were used only once in the whole book. It should be noted that 203 of these 240 words were repeated considerably fewer times than the 25+ and 15+ repetitions associated with the faster Rt words at the two testing points in the NRS longitudinal study.

In my own analysis work with beginning-reading programs, I did not systematically attempt to determine the extent to which any of the eight programs considered repeat their words. I did, however, find that two of the programs--Houghton Mifflin and Ginn--mention the topic in the front matter of their primary grades teacher's manuals. Houghton Mifflin discusses its repetition policy in reference to its category of <u>basal words</u> (i.e., high frequency words) which constitute the majority of words used in its primary grades materials. Regarding these words, the developers state

that through second grade these basal words appear "with sufficient repetition guaranteed to build them into students' instant recognition vocabulary" (1976, Teacher's Guide for Honeycomb, Level E, p. I-23). Would that Houghton Mifflin would tell us how many repetitions are "sufficient" to guarantee such an important outcome!

Ginn mentions repetitions in reference to its category of basic words (i.e., words that are new to the program and contain phonemic or structural elements not previously taught). These words, like the Houghton Mifflin basal words, constitute the majority of words used in their primary grades materials. Ginn notes that their basic words "appear at least 3 times within the selection or level" (1976, Teacher's Guide to May I Come In?, Level 5, p. T14). For words that are introduced as whole units (as is the case for Ginn's basic words), I question whether three repetitions are enough for many children (especially for children in our target population) even to establish memory for them, albeit weak. The older basals seem to have been more cognizant of the fact that a whole-word approach requires that words be repeated often in order for them to be remembered; memory for the whole word must be established if the word can't be decoded from alphabetic-phonic knowledge.

That beginning readers probably decode differentially depending on how they are taught has been noted by Sticht et al. (1974) who suggest that:

> In the early stages of learning to read, it seems likely that the child will attempt to decode such units of print into units of the spoken language as are involved in the teaching process. Thus, a teacher who uses a whole-word approach will stimulate children to decode entire printed words into spoken words (i.e., the unit of decoding will be the word). A teacher who uses a strong phonics approach will stimulate the use of letters and letter clusters to decode printed word segments into spoken word segments. (p. 66)

With Sticht's notions in mind, let's speculate on the processing that might occur for two children, one whose first textual encounter with a word followed its introduction through whole-word instruction, and the other whose first textual encounter with a word followed correspondence and blending instruction. In the former case, we might see the following: Upon meeting the word in a text the child probably has only a weak memory trace for it. Hence, a memory search is required, and processing of the meaning of the text is interrupted until that word is retrieved. With tiger as the target word, the child might read: "The boy saw the . . . (several seconds delay) tiger," and then re-read, "The boy saw the tiger." The re-reading that we often see in such cases likely occurs because the memory search for tiger deactivates memory for the previous words and thoughts which have to be reinstated, hence the re-reading.

Now consider the child who has word-attack skills. When first encountering tiger, the child reads: "The boy saw the . . . /t/ /ti/ /tige/ /tiger/" (or some such sounding out), "The boy saw the tiger." The re-reading here is due to the same psychological condition--deactivated memory for the previous words and thoughts that had to be reinstated. The point is that it matters little whether higher order processing is interrupted by a covert memory search for a whole word or an overt sounding out. What does matter is that interruptions in constructing the meaning of connected text caused by word processing problems be kept at a minimum.

Returning to Ginn's statements about word repetition, it is interesting to note that Ginn discusses repetitions for only those words that are introduced as whole units. Repetition is not mentioned for a word that can be independently figured out (i.e., a word for which all the incorporated phonemic units have been introduced prior to its appearance in a text). Ginn calls these words "decodable," thus distinguishing them from their basic words. These words are not pre-taught as are the basic words; rather, the child first encounters them in the course of reading. From the Ginn word-repetition statement and their operational procedures we can infer that

the developers repeat words for the purpose of placing the words in memory. But deliberate repetition as an attempt to develop rapid word recognition does not appear to have been a consideration, especially for words that can be independently sounded out.

Given the arguments to this point, it seems sensible to suggest that direct steps be taken to enhance rapid word recognition and thereby minimize word processing interruptions. A great deal of theory and a little data point to the notion that, during the first year or two of reading instruction, rapid word recognition will be facilitated if words introduced in reading programs are repeated in their stories often, and over time, and in varying contexts.

(By the way, I do not buy the argument that such repetition will result in dull material since there are numerous tradebooks that have delightful stories built from limited word sets and which include many word repetitions.)

As noted earlier, I did not determine the extent to which either the code-emphasis or basal programs I worked with repeat their words. My general sense in this regard is that some programs are better than others but that few, if any of them, attend to repetition as carefully as they might.[2] Therefore I can only say that my notions are similar to those of Rodenborn and Washburn (1974) who suggest that "vocabulary repetition in some reading series is very minimal" (p. 888).

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[2]Ginn was singled out because their mention of a repetition policy for their basic words and their failure to mention a policy for their decodable words allowed me to make the point that repetition is important for rapid word processing, regardless of how the word is first decoded. In fairness to Ginn, it should be noted that as I worked through the programs I got the sense that Ginn may repeat their early vocabulary more than some of the other programs.

Comprehension

And now we move to comprehension, which is, of course, the sine qua non of reading. My view of reading comprehension is drawn from the theories of Fries (1963), Sticht et al. (1974), and Carroll (1977) among others, who share the assumption that it is a specific case of language comprehension. This position holds that, apart from decoding skill, reading comprehension is dependent upon the same linguistic, conceptual, cognitive, and general knowledge abilities as aural language comprehension. Sticht and his colleagues have constructed a comprehensive developmental model that suggests that auding (ability to understand spoken language) is predictive of reading (ability to understand printed language) when the reader has developed automatic word-recognition skills. They present evidence from extensive literature reviewed that supports the four hypotheses from their auding-reading model. The most important hypothesis for instruction is that training that improves auding will transfer to improved reading when word processing is automatic. Accordingly, the sequence for improving reading comprehension is an oracy-to-literacy sequence. That is, until reading ability is as proficient as auding ability, concepts, knowledge, and core vocabulary required for reading in a particular domain should be acquired through oral language in advance of being encountered in print. Thus, learning to read is not a matter of learning to recognize words and then learning to comprehend. Rather, it is a matter of learning to recognize words in order to comprehend in print what is comprehensible in speech.

With these notions in mind, I should like to suggest that beginning-reading programs take great care to develop their textual materials around concepts that are as universally familiar as possible to young children. Moreover, unfamiliar concepts should be introduced via a direct, systematic oracy program which parallels beginning-reading instruction. That is, children should receive oral instruction about unfamiliar concepts they will later read about, concurrent with reading about familiar subjects. Another way in

which unfamiliar content might be made more understandable is to present it in narrative, rather than expository, form. My points may best be made by comparing the opening paragraphs of two selections from the Houghton Mifflin second grade materials in which we can contrast children's experiences with unfamiliar content in narrative versus expository form.

"Ma Lien and the Magic Brush" (Level H) is written in a narrative style with the opening paragraphs setting the scene and presenting the conflict: A poor boy in China wants to be an artist but can't afford a paint brush. The first paragraph reads:

> There once lived in China a poor peasant boy named Ma Lien. Day after day he worked hard in the fields so that he would have food to eat and a small hut to live in. (p. 234)

Although the meanings of some special words such as peasant and China might not be known, they can be skipped without losing the general idea of the passage. The concepts that the boy is poor and that he works hard to have food and a place to live are relatively simple and familiar to the second grader. This use of familiar ideas might even help children to infer the meanings of the more unfamiliar concepts. Moreover, the orderly and sequential discourse structure of the story is familiar to young children and may facilitate memory for the concepts in the story.

In contrast with this, through photographs and factual information, the general information story entitled "Hawaii" (Level H) imparts information about Hawaii's land, people, and customs. Its first few lines are:

> Hawaii is a chain of mountains standing in the sea. These mountains are called islands because of deep water all around them . . . These mountains are made when pressure and heat build up inside the earth. Then melted rock shoots up through the earth's outer covering. (p. 228)

And so it goes, each sentence in the article conveying a discrete bit of factual information, with no binding thread running from fact to fact and relating to what the child knows. There is no sequencing of concepts in this selection to support the students' memory for the facts. Moreover, early work by Piaget (1955) suggests that 7- and 8-year old children have difficulty recalling non-narratives and answering questions about them.

Thus, in general, a major difference between fictional narratives and non-fictional expositions is the structures of the discourses themselves. In addition, another major difference between the two forms as they are found in school materials is the degree of familiarity of the concepts included in the selections. The familiar concepts in "Ma Lien" and its familiar discourse structure may themselves lessen the demands on attention and perhaps free students to learn a little about the quality of life in ancient China. On the other hand, most of the concepts in "Hawaii" would be unfamiliar to many second-grade children. And the discourse structure, in addition to being unfamiliar, does not assist with an understanding of such concepts as chain of mountains, islands, pressure, and earth's outer covering. Are we concerned here with whether the second grader learns the concepts about Hawaii or whether he or she has a suitable selection for practicing lower order skills? If the concepts are of paramount importance, then the oracy-to-literacy sequence suggests that their acquisition will be facilitated through oral/aural instruction. If the objective is to provide appropriate materials for early reading practice, then several new concepts (but not so many) about Hawaii could be incorporated into a narrative fiction selection which would be easier for the children to read.

While children are reading selections about familiar subjects and in a familiar discourse structure, through oral/aural instruction, they should be growing in language development, in general, in their experiences of the world around them, and in cognitive skills. For instance, the understanding of intermediate subject-matter texts will be enhanced by earlier in-depth,

extended units in which children learn about and discuss the concepts that will eventually be read about. I am suggesting that students be given time to assimilate information that is learned aurally before the concept is elaborated in print. In the meantime, the student can be polishing his or her reading skills by reading materials familiar in content and structure.

Further Research

Part of my responsibility in this paper is to suggest research hypotheses that would address questions raised here. One area that we need to learn much more about is the development of automaticity in word recognition and the conditions under which it can be enhanced. Tracking the development of this ability is one aim of the NRS longitudinal study mentioned earlier. As to what facilitates the development of automaticity, we will attempt to see if the correlation found with the first cohort of subjects stands up with the second cohort.

Questions about the relationship between automaticity and efficient reading clearly indicate the need for a research program that measures word-processing facility of children who are taught under various approaches to beginning reading. Since NRS is a code-emphasis program, it is important to see if similar results occur with children who have received whole-word instruction. That is, do children taught under a whole-word approach show faster response times to words that have the most repetitions in their readers? We intend to replicate the study with whole-word subjects.

While we believe that repetition of vocabulary in student-reading material will always be useful, the amount and kind of repetition required probably change as students progress. With this in mind, it is important to track the development of automaticity and its relation to word frequency into second grade, and perhaps beyond.

Currently, we have evidence that readers continue to increase the word-processing speed through secondary school (Doehring, 1976), but what we do not know is how fast is fast enough for reducing lower order interference with higher order processing.

In the area of improving reading beyond the primary grades, a full-scale systematic effort to test the oracy-to-literacy instructional sequence should be begun. This will require long-term interventions, for Sticht himself has noted that:

> The value of such programs should not be assessed in the first or second grades, but in the third grade and beyond, when reading decoding skills become adequate for comprehension of print, using the languaging skills and conceptual base developed by oracy training. (p. 91)

The research on auding-reading transfer reviewed by Sticht is, in my opinion, strong enough to warrant the expensive longitudinal research required to evaluate its potential.

Instructional Ingredients for Beginning-Reading Competence

The arguments to this point suggest that the major instructional ingredients for developing beginning-reading competence are: 1) direct letter/sound correspondence instruction, i.e., instruction that explicity makes letter/sound relationships obvious to children; 2) a definite instructional strategy for teaching blending, i.e., a strategy that teaches children how to synthesize sounds into words; and 3) attention to the development of rapid word recognition through repeated exposure to the same words in various connected contexts. These instructional elements provide for the development of those skills that are unique to reading rather than a part of all language comprehension. They thus focus on the prerequisite skills underlying comprehension of printed material.

These elements need to be incorporated into a spiraling curriculum structure in which there is complementary development of word attack and rapid-word processing. In a spiraling structure, the child initially learns to decode only a limited number of important correspondences; then many sentences and paragraphs containing words comprising those known elements are made available to him or her in connected text. This condition is needed to allow the child to maintain a meaning-detection rather than a word-processing orientation toward the process of reading. As the child reads with meaning through the known elements, the next loop in the spiral enlarges and he or she is introduced to new elements. The child continues to read extended meaningful texts that incorporate the new elements into previously taught content.

Recommendations to Practitioners

Thus, my advice to practitioners in terms of manipulating reading programs is to provide direct instruction in skills necessary for building reading competence. The use of a code-emphasis program is a good place to begin since such programs select their words to maximize the regularities in the coding system. But, as has been demonstrated here, the choice of such a program is not sufficient to accomplish reading goals. The teacher should manipulate the pedagogy to make the letter/sound correspondences explicit. Children should see the grapheme, and should hear and repeat the phoneme being presented for instruction, rather than having to extract it from a word.

If the program being used does not employ a specific strategy to teach children how to synthesize sounds into words, then the teacher should insert one into the curriculum. Useful strategies can be found in the Distar program and in an article Lauren Resnick and I wrote which appears in John Guthrie's Aspects of Reading Acquisition, 1976. Word-building exercises similar to those using the Palo Alto Spelling Pocket can help to develop synthesizing ability.

Toward the development of automatic word recognition, the teacher should provide many opportunities for children to practice the words they learn. The teacher can develop game-like situations in which children read sentences containing new reading vocabulary in order to play. To provide additional textual material, teachers can develop "story paragraphs" that utilize the words introduced in a program. With explicit instruction in letter/sound correspondences, a strategy for blending, and opportunities to develop automatic word recognition, word processing problems should be minimized, thus allowing comprehension to occur. Comprehension of future materials can be enhanced by the application of the oracy-to-literacy sequence in which unfamiliar concepts are learned in advance of reading about them.

The recommendations offered about the ingredients needed for a successful beginning-reading curriculum are quite explicit in that they go far beyond just suggesting that a "phonic-component" or a "code-emphasis" approach is needed. As the body of this paper has shown, such labels are far too broad for selecting a program to use with children who may have difficulty learning to read in that a variety of instructional strategies (some of which are inappropriate) are subsumed under phonic and/or code-emphasis labels. The categorical perspective offered is useful as it can be tied to specific instructional materials and strategies <u>within</u> a program, thus enabling teachers to develop those program dimensions that are missing or need further attention.

The sum of the parts that have been offered suggests the need for a direct, structured curriculum. It may not be in vogue to make such recommendations, since we sense that educationalists' legitimate concern for the development of creativity and the enhancement of interest in learning has resulted in interpreting structure as being uninteresting, unpleasant, and rigid. But we believe this to be a false conclusion. Structured, direct teaching does not have to be bitter medicine. Success in early reading is critical for the students in our target population, and we believe that direct instruction in beginning reading can give students this success.

REFERENCE NOTES

1. Resnick, L. Theory and practice in beginning reading instruction. Paper presented at the annual meeting of the National Academy of Education, New York, October 1977.
2. Lesgold, A. Word-memory access and reading: Toward more explanatory evidence. Paper presented at the annual meeting of the American Educational Research Association, Toronto, March 1978.

REFERENCES

Bateman, B. Teaching reading to learning disabled children. In L. B. Resnick & P. Weaver (Eds.), Theory and practice in early reading. Hillsale, N.J.: Lawrence Erlbaum Associates, in press.

Beck, I. L., & Block, K. K. An analysis of two beginning reading programs: Some facts and some opinions. In L. B. Resnick & P. Weaver (Eds.), Theory and practice in early reading. Hillsdale, N.J.: Lawrence Erlbaum Associates, in press.

Beck, I. L., & McCaslin, E. S. An analysis of dimensions that affect the development of code-breaking ability in eight beginning reading programs (LRDC Publications in press). Pittsburgh: University of Pittsburgh, Learning Research and Development Center.

Beck, I. L., & Mitroff, D. D. The rationale and design of a primary grades reading system for an individualized classroom (LRDC Publications 1972/4). Pittsburgh: University of Pittsburgh, Learning Research and Development Center, 1972. (ERIC Document Reproduction Service No. ED 163 100.)

Bishop, C. H. Transfer effects of word and letter training in reading. Journal of Verbal Learning and Verbal Behavior, 1964, 3, 215-221.

Bloomfield, L., & Barnhardt, C. L. Let's read, a linguistic approach. Detroit: Wayne State University Press, 1961.

Bowers, J. E., Campeau, P. L., Roberts, A., & Oscar, H. Final report identifying, validating, and multi-media packaging of effective reading programs. Palo Alto, Calif.: American Institute for Research, 1974.

Bruce, D. J. Analysis of word sounds by young children. British Journal of Educational Psychology, 1964, 34, 158-169.

Bruner, J. S. Toward a theory of instruction. Cambridge, Mass.: The Belknap Press, 1966.

Calfee, R. C., Chapman, R. S., & Benezky, JR. L. How a child needs to think to learn to read. In L. W. Gregg (Ed.), Cognition in learning and memory. New York: John Wiley, 1972.

Carmine, D. W. Phonics versus look-say: Transfer to new words. The Reading Teacher, 1977, 30, 636-640.

Carroll, J. B. The analysis of reading instrtuction: Perspectives from psychology and linguistics. The Sixty-third Yearbook of the National Society for the Study of Education (Pt. 1), 1964, 63 336-353.

Carroll, J. B. Developmental parameters of reading comprehension. In J. T. Guthrie (Ed.), Cognition, curriculum, and comprehension. Newark, Del.: International Reading Association, 1977.

Chall, J. Learning to read: The great debate. New York: McGraw-Hill, 1967.

Diederich, P. B. Educating those who teach reading (TM Report 23). Princeton, N.J.: Education Testing Service, 1973a.

Diederich, P. B. Research 1960 - 1970 on methods and materials in reading (TM Report 22). Princeton, N.J.: Educational Testing Service, 1973b.

Doehring, D. G. Acquisition of rapid reading responses. Monographs of the Society for Research in Child Development, 1976, 41, (2, Serial No. 165).

Fernald G. Remedial techniques in basic school subjects. New York: McGraw-Hill, 1943.

Flesch, R. Why Johnny can't read and what you can do about it. New York: Harper & Brothers, 1955.

Fries, C. C. Linguistics and reading. New York: Holt, Rinehart & Winston, Inc., 1963.

Gibson, E. J., Gibson, J. J., Pick, A. D., & Osser, H. A developmental study of the discrimination of leter-like forms. Journal of Comparative and Physiological Psychology, 1962, 55(6), 897-906.

Gibson, E. J., Osser, H., & Hammond, M. The role of grapheme-phoneme correspondence in the perception of words. The American Journal of Psychology, 1962, 75, 554-570.

Gillingham, A., & Stillman, B. Remedial training for children with specific disability in reading, spelling, and penmanship. Cambridge, Mass.: Educators Publishing Service, 1966.

Guthrie, J. T., Samuels, S. J., Martuza, V., Seifert, M., Tyler, S. J., & Edwall, G. A study of the locus and nature of reading problems in the elementary school. Washington, D.C.: The National Institute of Education, 1976.

Haddock, M. Effects of an auditory and an auditoiry-visual method of blending instruction on the ability of prereaders to decode synthetic words. Journal of Educational Psychology, 1976, 68(6), 825-831.

Harris, A., & Serwer, B. The CRAFT Project: Instructional time in reading research. Reading Research Quarterly, 1966, 2, 27-57.

Huey, E. B. The psychology and pedagogy of reading. Cambridge, Mass.: M.I.T. Press, 1908, 1968.

Jeffrey, W. E., & Samuels, S. J. Effect of method of reading training on initial learning and transfer. Journal of Verbal Learning and Behavior, 1967, 6 354-358.

Kiss, G. R., & Savage, J. E. Processing power and delay--limits on human performance. Journal of Mathematical Psychology, 1977, 16, 68-90.

LaBerge, D., & Samuels, S. J. Toward a theory of automatic information processing reading. Cognitive Psychology, 1974, 6, 293-323.

Lesgold, A. M., & perfetti, C. A. Interactive processes in reading comprehension. Discourse processes, in press.

Marsh, G., & Sherman, M. Transfer from word components to words and vice versa in beginning reading (Tech. Rep. No. 23). Los Alamitos, Calif.: Southwest Regional Laboratory, 1970. (ERIC Document Reproduction Service No. ED 042 587.)

Muller, D. Phonic blending and transfer of letter training to word reading in children. Journal of Reading Behavior, 1973, 5(3), 13-15.

New York State Office of Education Performance Review. School factors influencing reading achievement: A performance review. Albany, New York: New York State Office of Education, March 1974.

Perfetti, C. A. Language comprehension and fast decoding: Some psycholinguistic prerequisites for skilled reading comprehension. In J. Guthrie (Ed.), Cognition, curriculum and comprehension. Newark, Del.: International Reading Association, 1977.

Perfetti, C. A., & Hogaboam, T. The relationship between single word decoding and reading comprehension skill. Journal of Educational Psychology, 1975, 67, 461-469.

Piaget, J. The language and thought of the child. New York: Meridian Books, 1955.

Popp, H. M. Visual discrimination of alphabet letters. The Reading Teacher, 1964, 17, 221-224.

Popp, H. M. Current practices in the teaching of beginning reading. In J. B. Carroll & J. S. Chall (Eds.), Toward a literate society (The report of the committee on reading of the National Academy of Education). New York: McGraw-Hill, 1975.

Resnick, L. B., & Beck, I. L. Designing instruction in reading: Interaction of theory and practice. In J. T. Guthrie (Ed.), Aspects of reading acquisition. Baltimore: Johns Hopkins University Press, 1976.

Resnick, L. B., & Weaver, P. (Eds.). Theory and practice in early reading. Hillsdale, N. J.: Lawrence Erlbaum Associates, in press.

Rodenborn, L. V., & Washburn, E. Some implications of the new basal readers. Elementary English, 1974, 51(6), 885-888.

Rosner, J. Language arts and arithmetic achievement and specifically related perceptual skills. American Education Research Journal, 1973, 10, 59-68.

Ross, A. O. Psychological aspects of learning disabilities and reading disorders. New York: McGraw-Hill, 1976.

Samuels, S. J. Automatic decoding and reading comprehension. Language Arts, 1976, 53, 323-325.

Silberman, H. The use of exploratory research and individual tutoring techniques for the development of programming methods and theory (Tech. Mem. No. 895/200/00). Santa Monica, Calif.: Systems Development Corporation, 1964.

Stebbins, L. B., St. Pierre, R. G., Proper, E. C., Anderson, R. B., & Cerva, T. R. Education as evaluation of Follow Through. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1977.

Sticht, T., Beck, L., Hauke, R., Kleiman, G., & James, J. Auding and reading: A developmental model. Alexandria, Virginia: Human Resources Research Organization, 1974.

Tallmadge, G. K. The development of project information packages for effective approaches in compensatory education. Los Altos, Calif.: RMC Research Corporation, 1974.

Venezky, R. L. Prereading skills: Theoretical foundations and practical applications (Theoretical Paper No. 54). Madison: Wisconsin Research and Development Center for Cognitive Learning, May 1975a.

Venezky, R. L. The curious role of letter names in reading instruction. Visible Language, 1975b, 9(1), 7-23.

Wallach, M. A. & Wallach, L. Helping disadvantaged children learn to read by teaching them phoneme identification skills. In L. B. Resnick & P. Weaver (Eds.), Theory and pratice in early reading. Hillsdale, N.J.: Lawrence Erlbaum Associates, in press.

Weber, G. Inner-city children can be taught to read: Four successful schools. Washington, D.C.: Council for Basic Education, 1971.

READING PROGRAMS

Bank Street College of Education. The Bank Street Readers. New York: Macmillan, 1973.

Buchanan, C. D. Programmed Reading (3rd ed.): A Sullivan Associates Program. New York: McGraw-Hill, 1973.

Clymer, T., Christenson, B., & Brown, V. Reading 720. Lexington, Mass.: Ginn, 1976.

Durr, W. K., LePere, J. M., & Alsin, M. L. The Houghton Mifflin Reading Series. Boston, Mass.: Houghton Mifflin, 1976.

Engelmann, S., & Bruner, E. C. Distar Reading I (2nd ed.): An instructional system. Chicago, Ill.: Science Research Associates, 1974.

Engelmann, S., & Bruner, E. C. Distar Reading II (2nd ed.): An instructional system. Chicago, Ill.: Science Research Associates, 1974.

Glim, T. E. The Palo Alto Reading Program (2nd ed.): Sequential steps in reading. New York: Harcourt Brace Jovanovich, 1973.

Otto, W., Rudolph, M., Smith, R., & Wilson, R. The Merrill Linguistic Reading Program (2nd ed.). Columbus, Ohio: Charles E. Merrill, 1975.

Scott, Foresman and Company. The New Open Highways (2nd ed.). Glenview, Ill., 1974.44

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